



June 9, 2021

Wade Crowfoot
Secretary for the California Natural Resources Agency
1416 Ninth Street, Suite 1311
Sacramento, CA 95814
secretary@resources.ca.gov

Re: Salinas Valley Groundwater Basin 180/400-Foot Aquifer Subbasin Groundwater Sustainability Plan

Dear Secretary Crowfoot,

I write on behalf of LandWatch Monterey County to object to the Department of Water Resources recent decision to approve the Salinas Valley Groundwater Basin 180/400-Foot Aquifer Subbasin Groundwater Sustainability Plan (“GSP”).¹ As outlined below and detailed in the attached letter (Exhibit 1), the GSP is inadequate as a matter of law because it fails to comply with the Sustainable Groundwater Management Act (SGMA) and DWR’s own regulations.

LandWatch has participated in good faith in the SGMA process in the hopes that its provisions for local groundwater control, backstopped by careful DWR review, will protect the groundwater resources that are vital to the Salinas Valley’s principal economic engine and to the housing that Monterey County so desperately needs. However, both the local SVGBGSA and DWR have ignored our objections and the plain legal requirements of SGMA. Unless SGMA is simply a paper generation exercise, DWR needs to take an aggressive and active role.

As currently drafted, the GSP will not prevent overdraft or the statutorily defined “undesirable result” of seawater intrusion in this critically overdrafted groundwater subbasin. Seawater intrusion has advanced inland six miles in the 180/400-Foot Aquifer Subbasin, destroying productive aquifers that once provided drinking water and supported coastal agriculture. Absent prompt, effective action by the local agency, the Salinas Valley Groundwater Basin Groundwater Sustainability Agency (SVGBGSA) or by DWR, seawater intrusion will continue to advance. Accordingly, we ask that you direct DWR to revisit its approval of the GSP.

LandWatch also objects to the failure of the SVGBGSA to *implement* a critical portion of the GSP, i.e., its provisions calling for an immediate and continuing moratorium on new wells in the Deep Aquifers pending a study of sustainable yield. Despite these provisions, there is no moratorium. Worse, no study has either begun or even been funded. As detailed in the attached letter (Exhibit 2), the moratorium is needed to prevent depletion and vertical migration of contaminated groundwater. Failure to implement the GSP’s express provisions intended to protect the Deep Aquifers violates SGMA. We ask that DWR exercise its authority to direct the SVGBGSA to implement its GSP provisions regarding the Deep Aquifers.

¹ Craig Altare, letter to Donna Meyers, June 3, 2021, and attached Statement of Findings Regarding the Approval of the 180/400 Foot Aquifer Subbasin Groundwater Sustainability Plan, available at <https://sgma.water.ca.gov/portal/service/gspdocument/download/4471>.

1. DWR must direct SVGBGSA to revise the GSP's minimum thresholds so that *each* threshold will support the adopted minimum threshold for seawater intrusion.

First, DWR should direct SVGBGSA to revise the minimum thresholds in its GSP so that *each* minimum threshold will ensure avoidance of the minimum threshold for seawater intrusion.² SGMA requires that each minimum threshold must avoid *each* undesirable result because it requires that "basin conditions at *each* minimum threshold will avoid undesirable results for *each* of the sustainability indicators." (23 CCR § 354.28(b)(2), emphasis added.) For example, the groundwater level minimum threshold must be "supported by" the "[p]otential effects on *other* sustainability indicators." (23 CCR 354.28(c)(1)(B), emphasis added.) This means that each minimum threshold, especially the groundwater level minimum threshold, must be coordinated to ensure that *all* undesirable results are avoided.

However, the GSP sets minimum thresholds for groundwater levels and for reductions in groundwater storage that are inconsistent with attaining the adopted minimum threshold for seawater intrusion, which is to halt seawater intrusion at the 2017 line of its advancement. The GSP's minimum threshold for groundwater elevations is one foot above the lowest historical groundwater level, *well below sea level*, a level that has permitted and will permit the continued advance of seawater intrusion. As the technical reports cited by LandWatch and by the GSP demonstrate, there is no question that groundwater levels below sea level induce seawater intrusion.

Furthermore, the GSP's minimum threshold for storage reduction allows the continued pumping of the entire sustainable yield with no provision for the pumping reductions the GSP admits are needed to replace the cumulative storage deficit. Replacing this cumulative deficit is necessary in order to restore protective groundwater elevations to halt seawater intrusion.

Seawater intrusion cannot be halted at the 2017 line if the GSP permits coastal groundwater levels to remain below sea level and does not require replacement of lost cumulative groundwater storage in order to return groundwater to elevations that will hold back seawater intrusion. The GSP violates SGMA's *legal* requirement that *each* minimum threshold must support the attainment of *each* sustainability indicator.

Furthermore, the 180/400 GSP fails to provide for *timely* pumping reductions that are needed halt seawater intrusion at the 2017 line.³ The GSP admits that pumping "must be held below the minimum threshold to achieve necessary rises in groundwater elevation," but it postpones the needed reductions for an indeterminate period until some future determination is made about the success of future projects designed to halt seawater intrusion.⁴ Regardless whether these infrastructure projects are eventually designed, approved, funded, or successful, there will be a period of many years – indeed decades -- until they are implemented. The GSP postpones even the *commitment* to such projects for two years to await the completion of sustainability plans for the other Salinas Valley subbasins. After that commitment, project implementation would take at least an additional 2 to 9 years, and that schedule ignores the time needed to complete the contentious Proposition 218 process. In the meantime, seawater intrusion will advance past the 2017 line unless groundwater pumping is reduced. Immediate

² Michael DeLapa, letter to Chairman Stefania and Board of SVGBGSA, Nov. 13, 2019 (attached hereto as Exhibit 1), pp. 5-9.

³ Id., pp. 9-11, 12.

⁴ 180/400 Foot Aquifer Subbasin Groundwater Sustainability Plan, section 8.7.2, pp. 8-27 to 8-28, available at <https://svbgsa.org/wp-content/uploads/2020/04/SVGBGSA-Combined-GSP-2020-0123-rev-032520-1.pdf>.

pumping reductions are the *only* means to meet the GSP's minimum threshold for seawater intrusion: halting intrusion at the 2017 line of advancement.

Finally, the GSP fails to propose a coherent plan to halt seawater intrusion. Chapter 8 admits that pumping reductions are needed, but Chapter 9 proposes a project, a "Seawater Intrusion Pumping Barrier," that the GSP claims will *not* require pumping reductions to raise groundwater levels.⁵ The GSP then proposes to kick the can down the road by convening a "Seawater Intrusion Working Group" to determine "an agreed approach for managing seawater intrusion," effectively acknowledging that the GSP fails to identify, and provide specified information about, the management actions and projects needed to attain measurable objectives, as required by SGMA. (23 CCR § 354.44.)

DWR cannot find that a plan that defers the identification of management actions and projects by delegating this task to a working group is "sufficiently detailed," that it is "complete and includes the information required by the Act and this Subchapter," or that it meets SGMA's plan evaluation criteria. (23 CCR §§ 350.4(b), 350.4(f), 355.4.) Nor does the delegation of the seawater intrusion solution to a working group meet SGMA's public participation requirements. (23 CCR § 354.10.) The GSP simply fails to meet SGMA's legal requirement that the plan "*shall include a description of the projects and management actions the Agency has determined will achieve the sustainability goal for the basin.*" (23 CCR § 354.44(b)(2), *emphasis added.*)

Because the GSP violates SGMA's legal requirements for consistent minimum thresholds and adequate project descriptions that the agency has determined will meet sustainability goals, DWR cannot reasonably have found the plan in substantial compliance, as SGMA requires. (23 CCR §§ 355.2(e), 355.4.) DWR and SVGBGSA have discretion in developing and approving the GSP, but they must exercise this discretion "under a proper interpretation of the applicable law." (*Anderson v. Phillips* (1975) 13 Cal.3d 733, 737.) Accordingly, we ask that DWR direct the SVGBGSA to revise the GSP to identify measures that halt seawater intrusion, and will do so timely, consistent with the adopted minimum threshold.

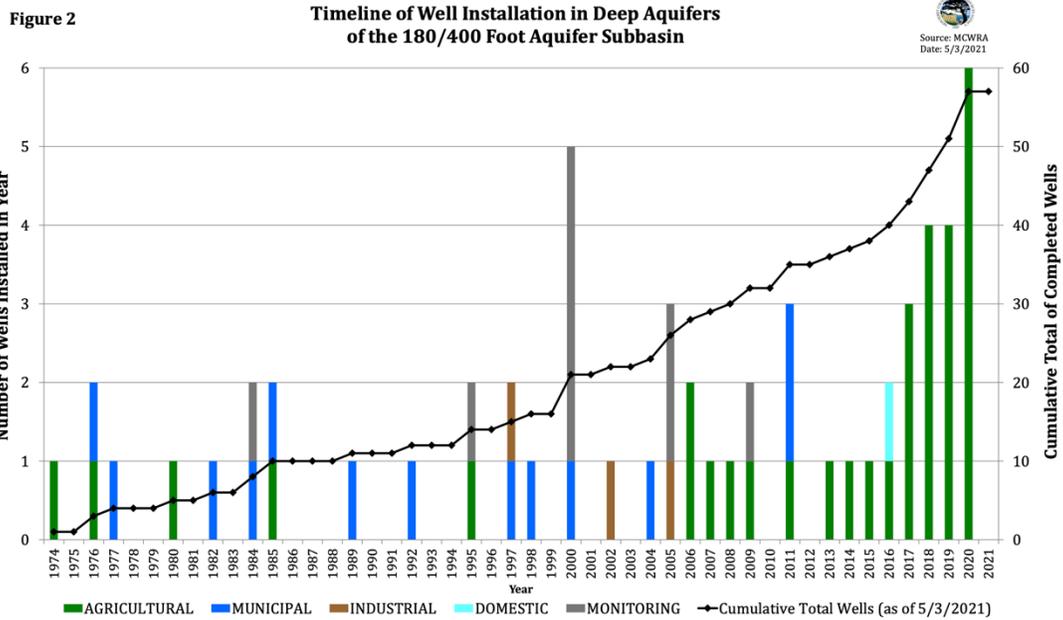
2. DWR should exercise its enforcement authority to require the SVGBGSA to implement the GSP provisions requiring a moratorium on pumping from new Deep Aquifer wells pending a sustainability study.

As set out in the attached letter (Exhibit 2), the SVGBGSA is failing to enforce a critical provision of the GSP, which requires a moratorium on pumping from new wells in the so-called "Deep Aquifers" of the 180/400-Foot Aquifer Subbasin.⁶

The GSP acknowledges that the extent and sustainable yield of the Deep Aquifers are poorly understood. However, as you can see, landowners are increasingly turning to the Deep Aquifers as seawater intrusion contaminates the 180-Foot and 400-Foot aquifers above it.

⁵ Michael DeLapa, letter to Chairman Stefania and Board of SVGBGSA, Nov. 13, 2019 (attached hereto as Exhibit 1), pp. 10-11.

⁶ John Farrow, letter to Board of SVGBGSA, June 9, 2021 (attached hereto as Exhibit 2).



Deep Aquifers Groundwater Extraction History Since 1993*

1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
2,054	1,992	2,036	2,137	2,170	1,906	2,056	2,302	2,355	2,399	2,366	2,442	2,358	2,005	1,738	2,004	2,102	1,903	1,803	2,044	1,989	3,784	3,746	3,788	4,116	4,605	4,820
1,507	2,620	2,302	1,990	2,556	1,648	96	1	0	0	0	0	0	0	58	384	696	982	927	1,397	1,097	2,031	2,010	4,194	4,834	4,749	5,331
0	0	0	0	0	0	0	3	13	17	379	305	343	336	393	371	348	333	370	380	523	620	617	569	567	291	196
3,561	4,612	4,338	4,127	4,725	3,554	2,151	2,307	2,368	2,416	2,745	2,747	2,701	2,341	2,189	2,759	3,146	3,218	3,100	3,821	3,608	6,436	6,373	8,551	9,516	9,645	10,347

* Notes: Table includes all reported extraction data for the thirty-four (34) Deep Aquifer production wells that have reported extractions since inception of the Agency's GEMS program in 1993. Data are reported in acre-feet. Colors denote water use category (Municipal, Agricultural, Industrial). An additional twelve (12) recently constructed Deep Aquifer Agricultural production wells have yet to report extractions as of Reporting Year 2019.

Dozens of new high-capacity agricultural wells have been constructed since 2006, despite the 2003 study that found that increased pumping of the Deep Aquifers would induce seawater intrusion into the upper aquifers and risk vertical migration of contaminated groundwater into the Deep Aquifers too. Pumping from the Deep Aquifers is now more than two and half times higher than the level the 2003 study found would put the aquifers at risk, and it is increasing. Groundwater levels in the Deep Aquifer have been falling since 2014, increasing the vertical gradient that induces migration of contaminated groundwater. Vertical migration of contaminants has been documented.

In 2017, the Monterey County Water Resources Agency (MCWRA) recommended a moratorium on new Deep Aquifer wells pending a study of its sustainable yield. Although the County enacted a two-year moratorium in 2018, that moratorium allowed so-called “replacement wells” in the Deep Aquifers, and many have been permitted and constructed. And despite MCWRA’s 2020 recommendation that the County extend the 2018 moratorium and prohibit replacement wells, the County allowed the moratorium to lapse completely in May 2020. The County continues to permit high capacity Deep Aquifer wells – five in 2020 alone – and it does so without environmental review under CEQA, treating them as exempt under CEQA’s categorical exemption for emergency projects.

The January 2020 GSP includes as Priority Management Action 5 a commitment to a continuing moratorium on new Deep Aquifer pumping pending the Deep Aquifer study. The GSP noted that the SVGBGSA itself had the authority to restrict pumping in the Deep Aquifers under Water Code Section 10726.4(a)(2). However, Priority Management Action 5 has not been implemented. The promised Deep Aquifer study has neither been funded nor commenced, the County continues to permit new Deep Aquifer wells, and the SVGBGSA has not prohibited pumping from new Deep Aquifer wells.

The SVGBGSA should immediately act to prohibit pumping from any new wells in the Deep Aquifer pending completion of the promised study. The SVGBGSA has the authority to do this under the Water Code. And DWR has the authority to see that it does. (23 CCR § 355.6(f) [DWR “may evaluate the implementation of a Plan at any time to determine whether the Plan is consistent with the objectives of the Act and in substantial compliance with this Subchapter”].) We ask that you direct DWR to ensure that the SVGBGSA acts to enforce its GSP.

Yours sincerely,



Michael DeLapa
Executive Director

Cc: Craig Altare, P.G. DWR, craig.altare@water.ca.gov
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Gary Petersen, SVGBGSA, peterseng@svbggsa.org
State Senator John Laird
State Senator Anna Caballero
Assemblymember Mark Stone
Assemblymember Robert Rivas

EXHIBIT 1



November 13, 2019

Ron Stefani, Chairperson
Members of the Board of Directors
Salinas Valley Basin Groundwater Sustainability Agency
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Carmel Valley, CA 93924
Via email peterseng@svbgsa.org, camela@svbgsa.org

Subject: Comments on 180/400-foot Aquifer Subbasin Groundwater Sustainability Plan

Dear Chair Stefani and Members of the Board of Directors:

LandWatch appreciates the opportunity to comment on the 180/400-Foot Subbasin Groundwater Sustainability Plan. Our comments are organized into three sections:

- Summary of comments
- Section 1 documents why the GSP does not meet the legal requirements of the Sustainable Groundwater Management Act (“SGMA”)
- Section 2 recommends policy-based changes to the GSP

Summary of comments

The 180/400-Foot Aquifer Subbasin Groundwater Sustainability Plan (“GSP” or “Plan”) fails to address the biggest threat to the groundwater resource – continued seawater intrusion. The Plan appears to have been designed to avoid the one measure that is most certain to address this threat: immediate mandatory reductions in groundwater extractions.

Each of the legal shortcomings in the Plan document can ultimately be traced to an unwillingness of the SVGBGSA to face the uncomfortable reality that mandatory pumping reductions are needed, and are needed now. As set out in detail in Section I, the Plan does not comply with SGMA for the following reasons:

- The GSP fails to adopt a conservative estimate of sustainable yield until resolution of data gaps and calibration of the groundwater model.
 - The groundwater model is not calibrated.
 - The minimum threshold for reduction in storage is improperly based on uncalibrated model projection of 2070 sustainable yield and improperly uses the least conservative estimate of sustainable yield.

- The minimum thresholds for groundwater levels and storage reduction are inconsistent with SGMA regulations because they fail to avoid the undesirable results for the seawater intrusion sustainability indicator.
 - The minimum threshold for groundwater levels, set at one foot above lowest historical groundwater levels, will not support the minimum threshold for seawater intrusion, set at existing line of seawater intrusion advance, because those groundwater levels will not halt seawater intrusion.
 - The minimum threshold for reduction in storage, set at the future long-term sustainable yield, will not support the minimum threshold for seawater intrusion, because halting seawater intrusion requires *replacement of depleted groundwater storage* by temporarily reducing extractions to below the sustainable yield.

- The GSP proposes inconsistent programs and management actions to attain the minimum threshold for seawater intrusion, and these remedies would not be timely.

- The Plan fails to include immediate pumping reductions, which are required in order to attain the identified minimum threshold for seawater intrusion.

- The Plan fails to mitigate overdraft: the water charges framework cannot reliably mitigate overdraft because pumping reductions remain voluntary and because price sensitivity and demand elasticity are unknown.
 - SGMA requires that a GSP identify projects or management actions, including demand reduction or other methods, that would be sufficient to mitigate overdraft.
 - Contrary to the Plan's claim, the water charges framework would not reduce demand or increase supply sufficiently to mitigate overdraft because it relies on voluntary pumping reductions and permits pumping in excess of sustainable pumping allocations.
 - Mitigation of overdraft requires mandated pumping restrictions that limit total pumping to current sustainable yield plus newly produced water.
 - The Plan fails to provide the mandatory quantification of the mitigation of overdraft: it fails to quantify the benefits of management actions, it assigns all of the Basin-wide Project benefits to the 180/400- Foot Aquifer Subbasin, it double counts some benefits, and it contains an arithmetic error.

- The implementation plan improperly delays substantive action for two years in order to accommodate the implementation schedule for the GSP for the rest of the Basin, which is not *critically* overdrafted.

- The Plan fails to identify project startup dates.

- The Plan fails to impose pumping restrictions pending startup of new water projects. Interim pumping restrictions are needed in order to restore and maintain the protective groundwater elevations to attain the minimum threshold for seawater intrusion.

- The GSP's multiple, inconsistent, incomplete, and deferred approaches to meeting the seawater intrusion minimum threshold – eventual temporary pumping reductions, a long-delayed \$100+ million pumping barrier, or some eventual “agreed approach” from the Working Group – renders the GSP uncertain and inadequate as a plan.

In addition to these comments, LandWatch makes suggestions to revise and improve the Plan in Section II, below. LandWatch's detailed comments follow.

Section I: The GSP does not meet SGMA's requirements.

Set forth below in this section A through H are deficiencies in the Plan that preclude it from meeting SGMA's requirements. LandWatch has previously made many of these comments in letters submitted to the SVGBGSA Board as draft chapters have been released. However, the deficiencies remain.

A. The GSP fails to adopt a conservative estimate of sustainable yield until resolution of data gaps and calibration of the groundwater model.

1. The groundwater model is not calibrated.

Chapter 6 of the GSP presents three different and currently unreconciled sustainable yield calculations, one based on the historic water budget (95,700 AFY), one based on the projected 2030 water budget (107,200 AFY in 2030), and one based on the projected 2070 water budget (112,000 AFY in 2070).¹ (GSP, section 6.10.5, Table 6-31.) Chapter 6 admits that the historical and future water budgets “are developed using different approaches, and are therefore not directly comparable with each other” and are not “based on a consistent approach.” (GSP, p. 6-1.) A fundamental problem is that the USGS model has not yet been calibrated with reference to the historic data and thus the projection of the future water balance is not based on a calibrated model. (GSP, p. 6-1.) SGMA requires that the model be calibrated. (23 CCR § 358.18(c)(2), (3).)

2. The minimum threshold for reduction in storage is improperly based on uncalibrated model projection of 2070 sustainable yield and improperly uses the least conservative estimate of sustainable yield.

Citing the section §354.28(c)(2) definition of the minimum threshold for reduction of groundwater storage as “a total volume of groundwater that can be withdrawn from the subbasin without causing conditions that may lead to undesirable results,” the GSP sets the minimum threshold for the reduction in groundwater storage as the “the future long-term sustainable yield of the Subbasin under reasonable climate change assumptions,” which Chapter 6 identifies as 112,000 AFY. (GSP, p. 8-27.)

Use of the conservative estimate of Sustainable Yield is mandated by the level of uncertainty. SGMA provides that “sustainable management criteria and projects and

¹ Unaccountably, the historical sustainable yield is stated at 95,700 AFY in Table 6-31, but as 97,200 AFY in Table 6-21.

management actions shall be commensurate with the level of understanding of the basin setting, based on the level of uncertainty and data gaps.” (23 CCR § 350.4(d).) The minimum thresholds for sustainability indicators must be “qualified by uncertainty in the understanding of the basin setting.” (23 CCR § 354.28(b)(1).) Measurable objectives must also “be commensurate with levels of uncertainty.” (23 CCR § 354.30(c).) The SVGBGSA must “take into account the level of uncertainty associated with the basin setting when developing projects or management actions.” (23 CCR § 354.44(d).) And in deciding whether to approve the Plan, DWR must consider “whether sustainable management criteria and projects and management actions are commensurate with the level of understanding of the basin setting, based on the level of uncertainty, as reflected in the Plan.” (23 CCR § 354.4(b)(3).)

Despite the mandate for conservative assumptions to reflect uncertainty, the Plan relies on the *least* conservative estimate of sustainable yield, the highest, uncalibrated, black-box model output for the 2070 Sustainable Yield of 112,000 AFY – a figure produced from a model not made available to the public. The Plan should instead rely on the lower Historical Sustainable Yield of 95,700 AFY, a figure that is based on past historic data and the analysis in publicly available reports. The only rationale the GSP offers for its choice of the least conservative figure for Sustainable Yield is the stakeholder “preference” not to reduce their pumping:

Public and stakeholder input on the significant and unreasonable conditions for groundwater storage suggested a preference for increasing groundwater storage, but not a preference for restricting average year pumping. Therefore, the minimum threshold is set at the long-term future sustainable yield of 112,000 AFY.

(GSP, section 8.7.2, p. 8-27.)

SMGA requires that the analysis, management actions, and projects in a GSP incorporate “best management practices” (BMPs) and that they be supported by “best available information” and “best available science.” (See, e.g., 23 CCR, §§ 351(h),(i); 354.16; 354.18(e) 354.44(c); 355.4(b)(1), Stakeholder preferences may not preempt these considerations.

The GSP states that the sustainable yield “values in Table 6-31 are estimates only” and that the “sustainable yield value will be modified and updated as more data are collected and more analyses are performed.” (GSP, section 6.10.5, p. xi.) Regardless whether the values are changed after further analysis, the GSP must observe SGMA’s mandate to use conservative estimates in the face of uncertainty.

B. The minimum thresholds for groundwater levels and storage reduction are inconsistent with SGMA regulations because they fail to avoid the undesirable results for the seawater intrusion sustainability indicator.

SGMA requires that each minimum threshold must avoid *each* undesirable result because it requires that “basin conditions at each minimum threshold will avoid undesirable results for *each of* the sustainability indicators.” (23 CCR § 354.28(b)(2), emphasis added.) For example, the groundwater level minimum threshold must be “supported by” the “[p]otential effects on *other* sustainability indicators.” (23 CCR 354.28(c)(1)(B), emphasis added.) This means that each minimum threshold, especially

the groundwater level minimum threshold, must be coordinated to ensure that *all* undesirable results are avoided.

- 1. The minimum threshold for groundwater levels, set at one foot above lowest historical groundwater levels, will not support the minimum threshold for seawater intrusion, set at existing line of seawater intrusion advance, because those groundwater levels will not halt seawater intrusion.**

Chapter 8 adopts the 2017 line of advance of seawater intrusion as the minimum threshold for seawater intrusion:

The 2017 extent of the 500 mg/L chloride concentration isocontour as mapped by MCWRA is adopted as the seawater intrusion minimum threshold for both the 180- and 400-Foot aquifers.

(Section 8.8.2, p. 8-33.)

Because each minimum threshold must avoid each undesirable result, the groundwater level minimum thresholds should be set at the levels that have been determined to be sufficient to prevent seawater intrusion. These levels should be determined based on the most current modeling or groundwater levels that are sufficient to prevent seawater intrusion. If currently modeling is not available, then the 2013 modeling prepared by Geoscience for MCWRA should be used. Regardless, the groundwater levels must clearly be higher than sea level.

Section 8.6.2 sets a minimum threshold for groundwater elevations at one foot above the 2015 groundwater levels. (GSP, section 8.6.2.1, p. 8-9.) This proposed level is equal to the 1991-1992 groundwater level, which was the lowest historical level that occurred in the 1967-1998 climatic cycle. (Ibid; see also Chapter 8, Figure 8-1.) Figures 8-2 and 8-3 show that the proposed minimum groundwater levels *would be well below sea levels in the northern end of the Salinas Valley*. This is consistent with the MCWRA groundwater contour maps for 2015, which show that 2015 elevations were in fact well below sea level in the northern Salinas Valley.² Seawater intrusion accelerated in 2015.³

Section 8.6.3 sets a measurable objective for chronic lowering of groundwater levels that “represent groundwater elevations that are higher than the minimum thresholds” in order to “provide operational flexibility to ensure that the Subbasin can be managed sustainably.” This level was set at the 2003 groundwater levels, representing “an average groundwater level from the relatively recent past.” Figures 8-4 and 8-5 show that the proposed measurable objective for groundwater levels would be *well below sea levels in the northern end of the Salinas Valley*. Again, this is consistent with the MCWRA groundwater contour maps for 2003, which show that 2003 elevations were

² Maps available at <https://www.co.monterey.ca.us/home/showdocument?id=31284> and <https://www.co.monterey.ca.us/home/showdocument?id=31286>.

³ MCWRA, Recommendations to Address the Expansion of Seawater Intrusion in the Salinas Valley Groundwater Basin, Special Reports Series 17-01, October 2017, pp. 4-5, available at <https://www.co.monterey.ca.us/home/showdocument?id=57394>.

well below sea level in the northern Salinas Valley.⁴ Seawater intrusion continued in 2003.⁵

Seawater intrusion occurred throughout the 1967-1998 climatic cycle and has continued to date. It is caused by groundwater levels that are too low to hold back seawater. In its 2013 study for MCWRA, Geoscience reported the historic rate of seawater intrusion in various time intervals.⁶ Intrusion accelerated over the period 1965 to 1999.⁷ It has recently accelerated again.⁸ Indeed, seawater has continued to steadily advance in both the 180 and 400 foot aquifers through 2017 -- the most recent year that Monterey County released seawater data -- and now persists within half a mile or closer of the Salinas city boundary.

Geoscience explained that "historical pumping has lowered ground water levels in both the 180-Foot and 400-Foot aquifer systems such that there is a landward hydraulic gradient which has caused extensive sea water intrusion."⁹ The report explains that control of sea water intrusion requires achieving and maintaining "protective elevations," which are defined as "those groundwater elevations which will keep the fresh/salt water interface from migrating inland. *In the northern portion of the Salinas Valley these elevations need to be above sea level and the flow of ground water toward the coast.*"¹⁰ The report explains that Geoscience quantified the protective elevations necessary to halt seawater intrusion using the SVIGSM model.

Geoscience's report sets out these necessary protective elevations in Figures 9 and 10 for the 180-Foot and 400-Foot Aquifers. These protective elevations necessary to prevent seawater intrusion are from *10 to 30 feet above sea level in the northern Salinas Valley.*¹¹

⁴ Maps available at <https://www.co.monterey.ca.us/home/showdocument?id=19538> and <https://www.co.monterey.ca.us/home/showdocument?id=19554>.

⁵ MCWRA, Recommendations to Address the Expansion of Seawater Intrusion in the Salinas Valley Groundwater Basin, Special Reports Series 17-01, October 2017, pp. 4-5.

⁶ Geoscience, Protective Elevations to Control Seawater Intrusion in the Salinas Valley, 2013, available at <https://www.co.monterey.ca.us/home/showdocument?id=19642>.

⁷ Id., p. 5, Table 2.

⁸ MCWRA, Recommendations to Address the Expansion of Seawater Intrusion in the Salinas Valley Groundwater Basin, Special Reports Series 17-01, October 2017, pp. 4-5.

⁹ Id., p. 4.

¹⁰ Id., p. 6, emphasis added.

¹¹ Geoscience determined that in order to achieve these protective elevations, additional recharge or "in lieu recharge," i.e., coastal pumping reductions made possible by moving surface water from the south to the north, would be required:

The amount, location and timing of groundwater recharge (direct and in lieu), needed to maintain protective elevations and a seaward hydraulic gradient was determined using the SVIGSM. Based on model results, and assuming 2030 land use conditions, 12,000 acre-ft/year will be required from the SVWP Phase I facilities and 48,000 acre-ft/year will

The fact that existing groundwater levels are far from the levels required to prevent further seawater intrusion is readily apparent from the technical study on which the GSP relies for the historic water budget in Chapter 6.¹² That study establishes that as of 2013 there was a cumulative storage deficit in the Pressure Subbasin, an MCWRA management area that includes the 180/400 Foot Aquifer Subbasin and the Monterey Subbasin, amounting to 110,000 acre-feet.¹³ That study concludes that this cumulative storage deficit would increase by 10,000 to 20,000 AFY under continued dry conditions. Since the drought did not end until 2019, the cumulative deficit has grown. The relation between cumulative deficit, insufficiently protective groundwater levels, and seawater intrusion is also evident from the rapid advances of seawater intrusion through 2017.

As Chapter 8 admits in section 8.6.2.3, "the GSP must describe the relationship between the selected minimum threshold and minimum thresholds for other sustainability indicators (e.g., describe how a water level minimum threshold would not trigger an undesirable result for land subsidence)." (GSP, p. 8-17.) Chapter 8 discusses the relationship of seawater intrusion and the minimum threshold for groundwater levels as follows:

Seawater intrusion. A significant and unreasonable condition for seawater intrusion is seawater intrusion in excess of the extent delineated by MCWRA in 2017. Lower groundwater elevations, particularly in the 180-and 400-Foot Aquifers, could cause seawater to advance inland. The groundwater elevation minimum thresholds are set at or above existing groundwater elevations. Therefore, the groundwater elevation minimum thresholds will not exacerbate, and may help control, seawater intrusion.

(GSP, section 8.6.2.3, p. 8-17.) The discussion is not accurate. The proposed groundwater minimum thresholds would cause seawater to advance, would exacerbate existing conditions, and would not help control seawater intrusion. The fact that the minimum thresholds are proposed to be one foot higher than the lowest historical groundwater elevations or that the measurable objectives are based on average conditions is insufficient.¹⁴ Because historic groundwater levels have caused seawater

be required from the SVWP Phase II facilities. Given the hydrologic variability in the Salinas Valley area, in order to supply a total of 60,000 acre-ft/year (on average), to the SVWP, it will be necessary to have the right to divert up to 135,00 acre-ft/year from the Salinas River.

Id., p. 11.

¹² Brown and Caldwell, *State of the Salinas River Groundwater Basin*, January 2015, available at <https://www.co.monterey.ca.us/home/showdocument?id=19586>.

¹³ Id., p. ES-11.

¹⁴ The Chapter 8 discussion in sections 8.6.2.2 appears to justify the minimum thresholds and measurable objectives based on the percentage of wells that would still have 25 feet of water. However, setting minimum thresholds and measurable objectives for groundwater levels at this level would permit continued seawater intrusion because that level is demonstrably insufficient to prevent seawater intrusion.

intrusion, the minimum thresholds and measurable objectives cannot simply be based on historic minimums or averages.

Chapter 8 also discusses the relation of groundwater elevation minimum thresholds with changes in groundwater storage. That discussion concludes that because the proposed minimum thresholds are set above existing groundwater levels, they “will not result in long term significant or unreasonable change in groundwater storage.” (GSP, section 8.6.2.3, p. 8-17.) This discussion is also not accurate. The GSP concludes that there has been an average loss of storage of 2,100 AFY during the historical period. (GSP, section 6.10.5, Table 6-31, page xii.) This conclusion is consistent with the calculated 2,000 average loss of storage in the Pressure Subarea during the period from 1944 to 2013.¹⁵ If the *average* historic groundwater elevations are correlated with the continuous depletion of the aquifer, setting the minimum groundwater elevations at the *lowest* historic level cannot support maintenance of aquifer storage.

2. The minimum threshold for reduction in storage, set at the future long-term sustainable yield, will not support the minimum threshold for seawater intrusion, because halting seawater intrusion requires *replacement of depleted groundwater storage* by temporarily reducing extractions to below the sustainable yield.

As discussed above, the GSP sets the minimum threshold for storage reduction at 112,000 AFY, representing the “future long-term sustainable yield of the Subbasin under reasonable climate change assumption.” (GSP, section 8.7.2, p. 8-27.) Also as discussed above, until SVGBGSA has a calibrated groundwater model that reconciles historic and modeled future conditions, it should adopt the most conservative estimate of the long-term sustainable yield for this minimum threshold, i.e., the 95,700 AFY estimated using the historic model. (GSP Table 6-31, p. xii.)

But even a conservative estimate of *long-term* sustainable yield is not an adequate basis to set the minimum threshold for storage depletion because the GSP proposes to use that minimum threshold as a target for sustainable pumping. *Until seawater intrusion is in fact halted, the GSP must adopt an even lower minimum threshold for annual storage reductions in order to replace the cumulative storage deficits and to restore the protective groundwater elevations that will halt seawater intrusion.* As noted in the previous section, there is an accumulated storage deficit in excess of 100,000 AF in the Pressure Subarea, which contains the 180/400-Foot Aquifer Subbasin.

In sum, adopting a conservative estimate of sustainable yield might be sufficient to maintain protective groundwater elevations *once those elevations are attained*, but the continued pumping of the long-term the sustainable yield will not *restore* protective groundwater elevations. The cumulative storage deficit from prior years of overdraft conditions must first be addressed through a program of temporary but substantial reductions in pumping to a level *below* long-term sustainable yield in order to reestablish protective groundwater elevations.

¹⁵ Brown and Caldwell, *State of the Salinas River Groundwater Basin*, 2016, p. Table ES-3, available at <https://www.co.monterey.ca.us/home/showdocument?id=19586>.

C. The GSP proposes inconsistent programs and management actions to attain the minimum threshold for seawater intrusion, and these remedies would not be timely.

The GSP admits that continued pumping of the long-term sustainable yield is inconsistent with replacing depleted groundwater storage to attain protective elevations. However, the GSP improperly defers the needed pumping reductions to some indefinite time in the future *after* the SVGBGSA has determined the efficacy of proposed projects and management actions:

While the sustainable yield calculated in chapter 6 assumes zero seawater intrusion, *it does not account for temporary pumping reductions that may be necessary to achieve the higher groundwater levels that help stop seawater intrusion.* Because the minimum thresholds represent long-term management criteria, any temporary pumping reductions needed to raise groundwater elevations are not explicitly incorporated into the thresholds. However, the SVBGSA recognizes that, dependent on the success of various proposed projects and management actions, there may be a number of years when pumping must be held below the minimum threshold to achieve necessary rises in groundwater elevation. *The actual amount of allowable pumping from the Subbasin will be adjusted in the future based on the success of projects designed to halt seawater intrusion.*

(GSP, section 8.7.2, pp. 8-27 to 8-28, emphasis added.) In short, the Plan defers the “temporary pumping reductions” to reestablish protective groundwater elevations even while admitting that these pumping reductions are essential.

The deferral would be for an indeterminate number of years. As discussed in section I.F below, the GSP’s implementation chapter postpones even the *commitment* to projects and management actions for the critically overdrafted 180/400-Foot Aquifer Subbasin for two years to coordinate them with the GSP for the rest of the Basin. Chapter 9 indicates that the time required to implement projects and management actions *after* that commitment would run from 2 to 9+ years, although the GSP fails to specify the actual project startup dates. the proposal in Section 8.7.2 to postpone temporary pumping reductions until the GSA first determines whether the long-delayed projects and management actions are effective would result in many more years of seawater intrusion.

Permitting the advancement of the seawater intrusion front for an indeterminate period would be inconsistent with the proposed minimum threshold for seawater intrusion, which requires halting it at the 2017 line of advancement. The fact that SGMA allows SVGBGSA 20 years to attain overall sustainability cannot cure the failure to take immediate action to address seawater intrusion because *the Plan provides no evidence that seawater intrusion can be reversed* once it has occurred. Indeed, the Plan does not provide any discussion of the issue. If reversal of seawater intrusion beyond the 2017 line of advancement were possible at all, it may require heroic measures that are not discussed in the Plan and that would not have been necessary if the intrusion were halted at the 2017 line. In the absence of any discussion of this question, there is no evidence that the Plan can in fact meet the seawater intrusion minimum threshold.

Even though Chapter 8 states that temporary pumping reductions are needed to meet the seawater intrusion minimum threshold, Chapter 9 proposes an entirely inconsistent approach. In Appendix 11E, comment 8-78 asks why the groundwater elevation measurable objectives were not set to stop seawater intrusion. The “DW Response” is that “intrusion could be stopped by pumping water out as well as by raising water levels.” The response in effect argues that the Plan is *not* committed to the temporary reductions in pumping to restore protective elevations that are mentioned in section 8.7.2, but is instead committed to the “Seawater Intrusion Pumping Barrier” identified as “Preferred Project 6.” (GSP, section 9.4.3.7, pp. 9-50 to 9-52.)

This \$100 million+ capital project calls for 18 barrier wells continuously pumping 30,000 AFY along an 8.5 mile stretch of the coast. There is no indication that the project has been determined to be feasible, either technically, environmentally, or financially. For example, it is not clear that the Proposition 218 beneficiaries of the project would be willing or able to shoulder its cost. And, the Plan provides no evidence that there is a beneficial use for 30,000 AF of brackish water removed from the basin annually or, if not, that the water could be disposed of somewhere without unacceptable environmental impacts.

Furthermore, unless immediate pumping reductions were implemented to restore protective groundwater elevations, seawater intrusion would continue until the Seawater Intrusion Pumping Barrier is implemented, a period of time that section 9.4.3.7.5 identifies as at least 5 years from project commitment, without allowing any time for the required Proposition 218 process. During that time seawater intrusion would continue to advance past the 2017 line of advancement, which is identified as the minimum threshold. That 2017 line of advancement is already more than six miles inland.¹⁶ The Plan provides no evidence that the proposed Seawater Intrusion Pumping Barrier along the coast could reverse seawater intrusion that has occurred more than six miles inland.

Furthermore, the inclusion of the Seawater Intrusion Pumping Barrier in the list of preferred projects begs the question to be addressed by the “Seawater Intrusion Working Group,” which is supposed to be convened as “Priority Management Action 6.” (GSP, section 9.3.7, pp. 9-20 to 9-21.) This Working Group is supposed to determine “an agreed approach for managing seawater intrusion.” (Id., p. 9-21.) The implication is that there *is in fact no agreed approach* and that the Seawater Intrusion Pumping Barrier is at best an uncertain remedy.

Finally, Priority Management Action 6, the Seawater Intrusion Working Group, is in essence a proposal to *postpone* the development of management actions and projects to halt seawater intrusion. This violates SGMA’s requirement that the *Plan itself* identify the management actions and projects that will mitigate overdraft and provide specified information about these management actions and projects. (23 CCR § 354.44.) For example, SGMA requires that the Plan identify the permits and regulatory process, the status and timetable, and the expected benefits of each project and management action and explain how it will be accomplished. (23 CCR § 354.44(b).) A plan that defers this information does not comply with SGMA because it is incomplete. DWR certainly cannot

¹⁶ MCWRA, Presentation to Special Joint Meeting, 2017 Salinas Valley Groundwater Level Contours & Seawater intrusion Maps, April 24, 2018, available at <https://www.co.monterey.ca.us/home/showdocument?id=63777>.

find that a plan that defers the identification of management actions and projects by delegating this task to a working group is “sufficiently detailed,” or that it will in fact attain sustainability, or that it meets SGMA’s plan evaluation criteria,. (23 CCR § 350.4(b), (f); § 355.4.) Nor does the delegation of the approach to mitigation of seawater intrusion to a working group meet SGMA’s public participation requirements. (23 CCR § 354.10.)

The GSP’s multiple, inconsistent, incomplete, and deferred approaches to meeting the seawater intrusion minimum threshold – eventual temporary pumping reductions, a long-delayed \$100+ million pumping barrier, or some eventual “agreed approach” from the Working Group – renders the GSP uncertain and inadequate as a plan.

D. The Plan fails to include immediate pumping reductions, which are required in order to attain the identified minimum threshold for seawater intrusion.

In its October, 2019 meeting to consider policy choices, the SVGBGSA Board discussed the possibility of establishing a buffer to permit further advance of seawater intrusion. However, SVGBGSA does not have the option to allow seawater intrusion to move further inland unless it is prepared to permit the further loss of the land overlying newly seawater-intruded portions of the aquifer for groundwater-based activity, e.g., agriculture. As noted, the Plan does not present any evidence that seawater intrusion can feasibly be reversed; and if it cannot be feasibly reversed, this loss of productive land may be permanent.

If the SVGBGSA were to adopt a minimum threshold for seawater intrusion that permits any further advancement, it would also have to adopt interim milestones in increments of five years, as required by 23 CCR § 354.30. Thus, SVGBGSA would have to decide how much longer it going to let seawater intrusion advance (if it adopts a time-based “buffer”) and/or whose land it would allow to be subjected to seawater intrusion (if it adopts a spatial “buffer”). Because the Board has not made this choice, it must adopt a plan that will in fact halt seawater intrusion at the 2017 line of advancement.

The only apparently feasible option to halt seawater intrusion at the 2017 line is immediate pumping reductions. The Plan does not identify pumping reductions that would adequately mitigate overdraft as a management action, even though the regulations require this:

If overdraft conditions are identified through the analysis required by Section 354.18, *the Plan shall describe* projects or management actions, including a quantification of demand reduction or other methods, for the mitigation of overdraft.

(23 CCR § 354.44(b)(2).) Proposed priority management action number 4 calls for an *eventual* pumping ban in the CSIP area, but only after such time as replacement water projects are implemented. Furthermore, the Plan fails to include the required quantification of the demand reduction this management action would attain. (GSP, section 9.3.9, pp. 9-16 to 9-18.) Proposed priority management actions number 1 and 2 *might* result in pumping reductions through voluntary land retirements or BMPs, but these reductions are neither assured nor quantified. (GSP, section 9.3.2, 9.3.3, pp. 9-10 to 9-14.)

More problematically, the Plan does not quantify the demand reduction that is *needed* to halt seawater intrusion at the 2017 line of advancement. As discussed, there is available modeling that has determined that a pumping reduction of 60,000 AFY in coastal pumping would be required in order to reestablish protective elevations.¹⁷ This modeling should be updated as necessary in order to specify a management action that would mandate the needed immediate coastal pumping reductions to halt seawater intrusion.

E. The Plan fails to mitigate overdraft: the water charges framework cannot reliably mitigate overdraft because pumping reductions remain voluntary.

1. SGMA requires that a GSP identify projects or management actions, including demand reduction or other methods, that would be sufficient to mitigate overdraft.

Mitigation of overdraft conditions is central to meeting the minimum thresholds for groundwater levels, storage reduction, and seawater intrusion. SGMA requires quantification of the “demand reduction or other methods” needed to mitigate overdraft. (23 CCR § 354.44(b)(2).) *Simply put, the SVGBGSA must either reduce pumping or take management actions and implement projects that would generate new water.*

The Plan includes projects, management actions, and an overarching “water charges framework” that are supposed to mitigate overdraft conditions and attain sustainability. (GSP, Chapter 9; see section 9.6, p. 9-85.) However, the Plan does not propose the one obvious and effective management action to ensure that pumping does not exceed sustainable yield: mandatory limits on pumping through water allocations.

As discussed in section I.D above, immediate pumping reductions are needed to attain the minimum threshold for seawater intrusion. But even if pumping reductions were not needed immediately, the Plan is not designed to ensure that pumping remains within the long-term sustainable yield of the 180/400-Foot Aquifer Subbasin. As discussed below, the Plan fails to implement an enforceable or quantifiable demand reduction and fails to show that the management actions and projects will effectively reduce demand or augment supply to avoid overdraft conditions.

2. Contrary to the Plan’s claim, the water charges framework would not reduce demand or increase supply sufficiently to mitigate overdraft

¹⁷ Geoscience determined that in order to achieve these protective elevations, additional recharge or “in lieu recharge,” i.e., coastal pumping reductions made possible by moving water from the south to the north, would be required:

The amount, location and timing of groundwater recharge (direct and in lieu), needed to maintain protective elevations and a seaward hydraulic gradient was determined using the SVIGSM. Based on model results, and assuming 2030 land use conditions, 12,000 acre-ft/year will be required from the SVWP Phase I facilities and 48,000 acre-ft/year will be required from the SVWP Phase II facilities. Given the hydrologic variability in the Salinas Valley area, in order to supply a total of 60,000 acre-ft/year (on average), to the SVWP, it will be necessary to have the right to divert up to 135,00 acre-ft/year from the Salinas River.

Geoscience, Protective Elevations to Control Seawater Intrusion in the Salinas Valley, 2013, p. 11.

because it relies on voluntary pumping reductions and permits pumping in excess of sustainable pumping allocations.

The Plan proposes an overarching water charges framework *that it claims will mitigate overdraft*:

The water charges framework is specifically designed to promote pumping reductions. Should adequate pumping reductions not be achieved to mitigate all overdraft, funds collected through the water charges framework will support recharge of imported water, either through direct recharge or in-lieu means. Therefore, the water charges framework in association with the projects and management actions listed in this chapter will mitigate overdraft through a combination of pumping reduction and enhanced recharge.

(GSP, section 9.6, p. 9-85.)

The water charges framework is based on based on different fees for pumping at three different levels. It distinguishes three levels of fees:

- A “regulatory” fee for pumping a user’s “sustainable pumping allowance,”
- A “surcharge” for a user’s “transitional pumping allowance,” where the transitional pumping allowance is based initially on current pumping and then declines to zero over a period of time, and
- A “supplementary fee” for “supplemental pumping,” i.e., pumping in excess of the sustainable and transitional allowance.

This water charge framework is “designed to achieve” two objectives: “to promote voluntary pumping reductions” and “to fund water supply projects.” (Chapter 9, § 9.2, p. 9-2.)

However, there is no evidence that the fees can or will be set at a level that attains sustainability as long as pumping reductions remain voluntary. A purely voluntary scheme can only work to attain sustainability if (1) the fees are set at a level that pays for water projects that make additional water available in excess of sustainable yield (“new water”) and (2) that fee level is just high enough to incent users to limit their cumulative pumping to an amount equal to current sustainable yield plus that new water. Setting this Goldilocks fee would require SVGBGSA to know the incremental cost of new water from a suite of potential projects and management actions, to know the elasticity of demand, and to know the point at which the marginal cost of new water equals its marginal benefit to users.

In short, reliance on voluntary reductions in response to price signals would not work unless the SVGBGSA has a lot more information to set water prices than it can possibly generate before this Plan must be implemented.

Furthermore, the Plan admits that most of the details of the water charges framework must be deferred due to lack of information. (GSP, section 9.2.7, “Details to be Developed.”) For example, there is no estimate of costs and benefits per acre/foot of new water for some of the management actions. There is no allocation of the estimated Basin-wide benefits of the proposed management actions and projects to users of the 180/400- Foot Aquifer Subbasin. There is no information as to the elasticity of demand

that would enable the SVGBGSA to determine what feasible projects and management actions, priced to users at an equitably determined cost per acre/foot, should be implemented in order to satisfy demand. However, if pumping reductions remain voluntary, establishing the supplementary charges for new water that would limit pumping to sustainable levels would require this cost/benefit information and a determination as to when the supplementary water charges will become so high that users will not be willing to buy more water.

Development of the water charge framework will also require critical compromises about technical matters and benefit allocation among affected parties, with vastly different interests by subbasin and by the type of user. This information will not be available by 2020 or perhaps for many years thereafter.

In sum, there is no prospect to get to an agreement, especially any time soon, on the amount of a supplementary water charge that would pay for needed projects and induce users to keep total pumping within the level of sustainable yield plus new water. Even if the SVGBGSA can determine the precise cost per acre/foot of new water, it is unlikely to know the point at which the benefits and costs of that next acre-foot of new water are equal. As long as pumping reductions remain voluntary, there is a significant probability that pumping will exceed sustainable yield.

Accordingly, as a practical matter, the Plan cannot rely on voluntary pumping reductions to ensure that pumping does not exceed sustainable yield. There is insufficient information to develop price signals as an effective incentive for voluntary pumping reductions, and the water charges framework is too uncertain to meet SGMA's requirements. (23 CCR § 354.44(c), (d) ["projects and management actions shall be supported by best available information and best available science;" and "agency shall take into account the level of uncertainty with the basin setting when developing projects and management actions"].)

3. Mitigation of overdraft requires mandatory pumping restrictions that limit total pumping to current sustainable yield plus newly produced water.

In light of the fact that the SVGBGSA cannot determine prices that would attain the needed voluntary pumping reductions, the obvious and essential way to mitigate overdraft is through mandatory reductions. The SVGBGSA must determine each user's share of the sustainable yield, and then mandate that pumping may not exceed this level. There are many methods to allocate shares of sustainable yield.¹⁸

Furthermore, as LandWatch has proposed in previous comments on a draft of Chapter 9, the SVGBGSA must restrict pumping in excess of the user's allowance of sustainable yield unless and until there is an actual committed, funded management action or project that will deliver new water. When new water is produced, the SVGBGSA should continue to restrict total pumping to the total of current sustainable yield plus that new water. To

¹⁸ Environmental Defense Fund and New Current Water and Land, LLC, Groundwater Pumping Allocations under California's Sustainable Groundwater Management Act, July 2018, available at https://www.edf.org/sites/default/files/documents/edf_california_sgma_allocations.pdf.

ensure this, when a management action or project is committed and funded, the SVGBGSA could distribute the new water by selling specific allowances of the new water to users.¹⁹

If demand for new water exceeds supply, the SVGBGSA could allocate the new water allowances through several means. For example, it could sell the new water by auction, e.g., a French auction in which the supply is sold at the lowest bid price above the cost of production that would clear the market. Alternatively, the right to purchase new water at the cost of production could be assigned to users according to some pre-determined formula, e.g. pro-rata, based on their initial allowances of the current sustainable yield.²⁰ There are other equitable ways to allocate new water. Regardless, the objective of the allocation system should be to recover at least its production cost, to dispose of all of the new water, and to prevent pumping in excess of the sustainable yield plus the amount of new water.

4. The Plan fails to provide the mandated quantification of the mitigation of overdraft: it fails to quantify the benefits of management actions, it assigns all of the Basin-wide project benefits to the 180/400- Foot Aquifer Subbasin, it double counts some benefits, and it contains an arithmetic error.

SGMA requires that if overdraft conditions are identified in the Water Budget, the Plan must “describe projects and management actions, including a quantification of demand reduction or other methods, for the mitigation of overdraft.” (23 CCR § 354.44(b)(2).) Section 9.6 purports to provide this quantification. However, the quantification has four flaws that must be corrected.

First, Section 9.6 fails to quantify the benefits of management actions. SGMA mandates quantification of the benefits of projects *and management actions*. (23 CCR § 354.44(b)(2).) The discussion in Section 9.6 and Table 9-5 address only the benefits of proposed projects, based on the estimated quantification of benefits of each proposed project in the discussion of projects in Section 9.4. There are no such quantified estimates of the benefits of the proposed management actions in Section 9.3. It is likely that the benefits of some of the proposed management actions could in fact be estimated. For example, the benefit of a pumping ban in the CSIP area would presumably be equal to current pumping in that area, which should be ascertainable.

Unless the SVGBGSA is prepared to supply at least an estimate of the benefits of proposed management actions, it is not clear that there is adequate evidence that they would have any meaningful or reliable benefits or that there is any way to evaluate those benefits, as required by 23 CCR § 354.44(b)(5). For example, the benefits of reservoir

¹⁹ A management action or project should not be deemed funded and committed until it has been approved by the implementing agency and until all needed funding is in place, including fee ordinances and Proposition 218 votes as needed.

²⁰ Users with an allowance of the existing sustainable water supply or an allowance of new water could be permitted to sell an allowance to other users. This secondary market in water allowances would ensure the water goes to the most valued use and would establish price signals that would inform SVGBGSA of users’ willingness to pay for future new water supply projects.

reoperations may be too speculative to include at this point in light of the federal agency revocation of the Biological Opinion controlling environmental flows and the unfunded obligation for dam safety repairs, estimated to cost \$145 million.²¹ (GSP, section 9.3.4, pp. 9-14 to 9-16, Priority Management Action 3: Reservoir Reoperation.”).

Second, Chapter 9 states that the proposed management actions and projects “constitute an integrated management program for the entire Valley,” not just the 180/400 Aquifer Subbasin. (Chapter 9, sections 9.3.1, 9.4.2.) Despite this, Section 9.6 only discloses the overdraft for the 180/400 Aquifer Subbasin and then concludes that the *benefits of projects intended to mitigate the entire Basin’s overdraft* is sufficient because it is greater than the overdraft in the 180/400 Foot Aquifer Subbasin. It is erroneous to allocate the entire benefit of Basin-wide mitigation to a single subbasin.

Third, Table 5 double counts the benefits of the proposed projects #2, 3, 4, and 5, all of which are intended to “work together to improve and expand the performance of the CSIP system” and are identified as “part of an integrated CSIP strategy.” (Chapter 9, page 31, “CSIP Projects.”). For example, the discussion of the benefits of Project # 5, Maximize Existing SRDF Diversion, states that the “estimated project yield is 11,600 AF/year. *The yield for this project is the same yield that is identified in Project #2 and a portion of the yield identified in Priority Project #3.*” (GSP, section 9.4.3.6.2, p. 9-49, emphasis added.) Despite this, Table 9-5 lists 11,600 AF/year as *additional* potential yield for Project #5, over and above the yield for Projects # 2 and #3. (GSP, Section 9.6, Table 9-5, p. 9-86.)

Fourth, Table 9-5 is not added correctly. The “total” for Table 9-5 is stated as “-58,201.” However, the sum of the elements listed in the table is 40,800 acre-feet per year of potential water available for mitigating overdraft. Eliminating the double counted 11,600 acre-feet per year for Project # 5, the total would be 29,200 AF/year.

F. The implementation plan improperly delays substantive action for two years in order to accommodate the implementation schedule for the GSP for the rest of the Basin, which is not *critically* overdrafted.

SGMA requires more urgent action for *critically* overdrafted basins than for other overdrafted basins: plans for critically overdrafted basins are due two years sooner than plans for other overdrafted basins. The Chapter 10 GSP Implementation proposal fails to recognize this urgency because it defers substantive action for the critically overdrafted 180/400 Foot Aquifer Subbasin until the SVGBGSA is prepared to implement the GSP for the rest of the Salinas Valley Groundwater Basin (SVGB). Because the remainder of the Basin is merely overdrafted rather than critically overdrafted, its GSP is not due until 2022.

In particular, section 10.7 postpones implementation of projects and management actions in order to coordinate with the timetable for the rest of the Basin:

²¹ Monterey Herald, “Reservoirs bond measure gets water agency support,” Oct. 23, 2019, available at <https://www.montereyherald.com/2019/10/23/reservoirs-bond-measure-gets-water-agency-support/>.

The projects and management actions identified in Chapter 9 are sufficient for attaining sustainability in the 180/400-Foot Aquifer Subbasin as well as the other five subbasins in the Salinas Valley. The projects and actions will be implemented in a coordinated fashion across the entire Salinas Valley to ensure Valley-wide sustainability. Because five of the subbasins in the Valley will not complete GSPs until January 31, 2022, many of the projects and actions will be implemented only after this time.

(GSP, section 10.7, p. 10-10.) Indeed, the only activities proposed for projects and management actions prior to completion of the GSP for the rest of the SVGB in 2023 are some water rights applications, cost refinement, preliminary design (“if projects adequately defined”), and some initiation of environmental permitting. (GSP section 10.7, p. 10-10.)

Figure 10-1, “General Schedule of 5-year Startup Plan,” represents that the SVGBGSA will “Implement Prioritized Projects” between 2023 and 2025. (GSP, section 10-9, p. 10-15.) However, the implication that the nine “Preferred” projects identified in Chapter 9 will actually start up in 2026 is inconsistent with the detailed project timelines in Chapter 9, which call for 2 to 9+ years to implement projects *after the SVGBGSA has committed itself to them*.

Furthermore, there is no reason to suppose that the SVGBGSA can or will commit itself to the basin-wide projects in 2023, the moment the SVGBGSA submits the GSP for the rest of the SVGB. First, DWR may not approve the Basin-wide GSP for several years, and the SVGBGSA may not be able to commit to a Basin-wide project without an approved Basin-wide GSP.

Second, many of the projects will require complex Proposition 218 compliance, undertaken only *after* SVGBGSA decides to pursue the projects, in order to determine whether fees can be assessed to actually build them.²² (Water Code, § 10730.2(c)). The Proposition 218 compliance process, requiring engineering studies and benefit allocations based on a completed design and hydrological assessment, followed by balloting and protest procedures, may add years to each major project. The SVGBGSA cannot actually commit itself to commence a project until it has confirmed that it may make assessments to finance the project through a completed Proposition 218 process. The implementation schedule does not include any time for this critical process.

Finally, section 10.2 defers the implementation of a financing method for projects and management actions to coordinate with the timetable for financing for the rest of the Basin:

Details of the GSP implementing finance framework for all six subbasins will be developed during the first three years of this GSP’s implementation through a

²² The GSP identifies a proposed “Groundwater Sustainability Fee” (also termed a “regulatory fee” and a “Tier 1 – Sustainable Pumping Charge”) for pumping a “Sustainable allowance” and an “interim base fee” pending completion of the “GSP financing framework.” (GSP, sections 9.2 and 10.2, pp. 9-1 to 9-3, 10-4 to 10-5.) However, before Proposition 218 compliance, those fees could not be used for projects but only for the activities related to developing and managing the GSP. (Compare Water Code, §§ 10730 and 10730.2.)

facilitated, Valley-wide process. This process will be similar to the successful facilitated process that resulted in the SVBGSA serving as the GSA for some or all parts of all six subbasins. The result of this facilitated process will be an agreement on the financing method approved by the SVBGSA. The facilitation will be complete by January 31, 2023, and the financing method will be implemented in all six subbasins immediately following.

(GSP section 10.2, pp. 10-4 to 10-5.) Here, the Plan is apparently describing the adoption of a financing “framework” or “method,” *not an actual financing plan or capital budget*. As noted, the actual budget and financing plan will require the completion of Proposition 218 processes for the projects.

In effect, the proposed GSP Implementation improperly treats the actual management of the critically overdrafted 180/400 Foot Aquifer Subbasin as if it were on the same timetable as the rest of the SVGB. This does not meet the mandate of SGMA, which requires more than a plan by 2020. SGMA requires that critically overdrafted basins “shall be *managed* under a groundwater sustainability plan” by January 31, 2020. (Water Code, § 10720.7(a)(1), emphasis added.)

If the development and financing of projects must await completion of the GSP for the remainder of the SVGB, and because substantial delay will inevitably be required to negotiate financing and develop projects, the SVBGSA should implement all feasible interim measures to manage the 180/400 Foot Aquifer Subbasin pending the implementation of basin-wide projects and financing. As discussed in section I.D above and in section I.H below, that must include immediate pumping reductions.

G. The Plan fails to identify project startup dates.

The Plan identifies various timelines for the nine identified priority water projects in Chapter 9 that include necessary actions in a necessary sequence, such as studies and preliminary engineering, obtaining agreements and right of way, CEQA, permitting, design, bid and construction, and startup. Some projects might be implemented in 2 years from commitment; but most are projected to take from 5 to 9 years from commitment to startup. As noted above, Chapters 9 and 10 do not include estimates of the additional time required for Proposition 218 compliance.

Chapter 9 does not disclose when the timelines for each project would commence running, so it is impossible to determine when these projects would actually deliver results. The Chapter 10 implementation schedule proposes that no projects commence “implementation” before the adoption of the GSP for the remainder of the SVGB in 2023 so that the projects can be coordinated on a basin-wide basis. However, Chapter 10 does not even purport to identify project start up dates. This violates SGMA. (23 CCR, § 354.44(b)(2).) As discussed above, contrary to Figure 10-1 it is not reasonable to assume that the SVBGSA will be able to “implement” all nine projects between 2023 and 2025. (GSP, p. 10-15.)

Chapter 10 should be revised to reflect realistic timelines for each project and management action that provide a best current estimate of startup that considers all necessary activity before startup, including the Proposition 218 process.

H. The Plan fails to impose pumping restrictions pending startup of new water projects. Interim pumping restrictions are needed in order to restore and maintain the protective groundwater elevations to attain the minimum threshold for seawater intrusion.

The development, permitting, and financing of water projects to replace reliance on current levels of groundwater pumping will take years. It is unlikely that any actual or substantial results toward halting seawater intrusion can be expected from the proposed projects and management actions by 2025, when Figure 10-1 indicates that the projects will be implemented. Projects may not deliver any substantial results before 2030. Interim management measures are required pending completion of projects. Interim measures must either provide additional water supplies or require mandatory pumping restrictions that will (1) actually ensure that pumping remains within the sustainable yield and (2) replace the cumulative storage deficit in order to restore groundwater levels to protective elevations.

Immediate pumping restrictions are feasible and would not require extensive data acquisition.

Pumping restrictions are legally feasible because they could be imposed based on the regulatory authority of GSAs to “control groundwater extractions by regulating, limiting, or suspending extractions from individual groundwater wells or extractions from groundwater wells in the aggregate, construction of new groundwater wells, enlargement of existing groundwater wells, or reactivation of abandoned groundwater wells, or otherwise establishing groundwater extraction allocations.” (Water Code, § 10726.4(a)(2).)

SVGBGSA could adopt pumping restrictions much more quickly than it could actually complete a project. In particular, SVGBGSA would not need to complete the proposed three-year negotiation of a water charge framework and would not need to conduct a potentially multi-year Proposition 218 process. And it is likely that pumping restrictions would be exempt from CEQA as a measure to protect natural resources and the environment. (14 CCR §§ 15307, 15308.) And if the SVGBGSA could not or would not adopt needed pumping restrictions through such a CEQA exemption, then the SWRCB could do so under a statutory exemption. (Water Code, § 10736.2.)

Pumping restrictions could be imposed on the basis of readily available information. For example, the Brown and Caldwell report has already been used to in Chapter 6 to identify the historic sustainable yield of 95,700 AFY. (GSP, Table 6-31, p. xii.) The Brown and Caldwell Report also provides an estimate of the cumulative storage deficit, which should be retired through pumping reductions. In its 2013 study for MCWRA, Protective Elevations to Control Seawater Intrusion in the Salinas Valley, Geoscience quantified the needed reductions in groundwater pumping (via in lieu recharge) to control seawater intrusion in the northern Salinas Valley.²³

Although more precise data may eventually be available to closely calibrate the needed pumping reductions, there is no reason not to estimate and implement needed

²³ Geoscience, Protective Elevations to Control Seawater Intrusion in the Salinas Valley, 2013, p. 11.

reductions in pumping immediately. *There is simply no question that some pumping reductions are essential to halt seawater intrusion.*

Again, the only rationale advanced in the GSP for avoiding a pumping restriction is that stakeholders did not express a “preference for restricting average year pumping.” (GSP, section 8.7.2, p. 8-27.) SGMA neither requires nor permits the SVGBGSA to honor a mere preference when that precludes meeting the mandates to meet the minimum thresholds, including the minimum threshold for seawater intrusion.

The GSP already proposes some pumping restrictions in the form of an immediate moratorium on new wells in the Deep Aquifer and an eventual restriction of pumping in the CSIP areas. (GSP, sections 9.3.5 and 9.3.6, pp. 9-16 to 9-20.) There is no reason that the GSP should not also address the need for immediate measures to address seawater intrusion.

Section II: The GSP should be revised.

Set forth in this section II are suggestions to improve the Plan.

A. Requested revisions to Chapter 6

1. Assumptions regarding efficacy of future projects and management actions to address seawater intrusion in the projected future sustainable yield should be spelled out.

We concur with Thomas Virsik’s concerns about the projected future sustainable yield. (June 4, 2019 letter from Thomas Virsik to the Planning Committee.) In particular, Chapter 6 does not explain its assumption that seawater intrusion will be reduced from 10,500 AFY to 3,500 AFY by 2030, despite an increase in pumping and an increase in the change in storage. If this assumption is based on the assumed efficacy of existing or future management actions and projects, then Chapter 6 should identify them and the basis for their assumed efficacy.

Future operations of existing projects may in fact be subject to substantial changes. For example, Chapter 6 states that the modeling of the projected future water budget assumes “the current approach to reservoir management taken by MCWRA.” (GSP, section 6.10.1.2, p. iv.) However, it is not clear that this assumption is warranted in light of the withdrawal of NOAA’s Biological Opinion for the Salinas Valley Water Project on February 20, 2019. Or for example, it is not clear whether and how the projected future water budget reflects the recent actions by the County to restrict pumping in the Area of Impact within the 180/400 Subbasin.²⁴ The fact that the model projects that net pumping in 2030 and 2070 will be substantially *greater* than historical pumping suggests that the

²⁴ Monterey County, Urgency Ordinance # 5302, available at <https://www.co.monterey.ca.us/government/departments-a-h/health/environmental-health/wells/interim-urgency-ordinance-5302>.

model assumes that the County's recent well moratorium in portions of the 180/400 Subbasin will not have any lasting effect on pumping amounts.

The purpose of the water budget is to inform decisions about what projects and management actions the SVGBGSA should implement to control undesirable effects, including seawater intrusion. Assuming a partial solution in the projected future water budget is unjustified unless the projects or management actions responsible for that partial solution are (1) outside the control of the SVGBGSA and (2) certain to be implemented by other parties. If projects or management actions responsible for that partial solution are within the control of the SVGBGSA, then they should be weighed against SVGBGSA's *other* options rather than being hard-wired into the water budget. If projects or management actions responsible for that partial solution are uncertain, then their uncertainty should be disclosed.

2. Double counting of water withdrawals should be resolved.

A number of previous comments have objected that the water budget overstates historic pumping, and therefore overstates future sustainable yield, because the historic data double counts groundwater pumping as surface water diversions. The Plan admits this problem. (GSP, section 8.11.2.1, p. 8-64.) In a June 18, 2019 letter, Thomas Virsik proposed a relatively straightforward method to identify or at least estimate this double counting by identifying identical extraction numbers in the eWRIMS data and the MCWRA groundwater pumping submissions. Resolution of double counting may materially affect the sustainable yield calculation in the historic water budget, and can only tend to reduce it. Conservative management under uncertainty requires that, before the GSA relies on the historic sustainable yield calculation, it should at least estimate this potential error and reduce the historic sustainable yield calculation by that estimate.

Chapter 6 states that the modeling of the *future* water budget does not double count extractions. (Section 6.9, p. 6-35.) This means that only the historical water budget's determination of sustainable yield has been overstated by double counting. This is not reassuring because it follows that the actual variance between the projected future sustainable yield determined by the USGS model (107,200 AFY in 2020 per Table 6-31) and the sustainable yield determined historically (95,700 AFY per Table 6-20) is even greater than disclosed by Chapter 6.

3. Sustainable yield determinations should incorporate climate change-caused variability in precipitation.

Chapter 6 notes that "projections are based on the available climate change data provided by DWR (2018)." (Section 6.10, p. iii.) The Chapter does not explain whether and how DWR's projections are reconciled with those in California's Fourth Climate Change Assessment Central Coast Region Report.

The Fourth Assessment notes:

- Average precipitation is expected to increase by a relatively small amount, but the annual variability increases substantially by the end of the century.
- Projected future droughts are likely to be a serious challenge to the region's already stressed water supplies.

- Water supply shortages, already common during drought, will be exacerbated. Higher temperatures may result in increases in water demand for agriculture and landscaping. Reduced surface water will lead to increases in groundwater extractions that may result in increased saltwater intrusion. Lower surface flows will lead to higher pollutant concentrations and will impact aquatic species.
- Climate change projections of future extreme and prolonged droughts will exacerbate the region's water supply challenges.²⁵

Chapter 6 should discuss how variability and uncertainties in future precipitation patterns will impact groundwater budgets. It is not clear that climate variability effects have been modeled. Increased peak precipitation years may not proportionately benefit the groundwater basin as much as increased drought years harm the basin. Peak precipitation may occur in large storm events discharged down the river and out to sea without resulting in proportionately higher basin recharge. However, it is clear that drought years do result in falling groundwater levels.

B. Chapter 7 should require that pumping be monitored by flowmeters.

Chapter 7 does not provide for an adequate system of monitoring annual groundwater extractions. LandWatch strongly recommends that the Salinas Valley Groundwater Basin Groundwater Sustainability Agency adopt an ordinance that requires

- 1) Independently calibrated and monitored flowmeters on agricultural pumps throughout the Salinas Valley Groundwater Basin; and
- 2) Annual pumping reports that are independently validated for accuracy.

The ordinance should also include strict enforcement provisions that help assure full compliance. The proposed use of the existing monitoring program to monitor annual groundwater pumping is not adequate because it will generate inaccurate results and potentially lead to unfair cost allocations.

As LandWatch's previous comments on Chapter 7 explain, Monterey County Water Resource Agency does not enforce Monterey County Ordinance No. 3717 which requires installation of flowmeters meeting MCWRA specifications for all groundwater extraction facilities with a discharge pipe of 3 inches or greater. Many wells report extraction based on electricity consumption instead of the mandated reporting based on flowmeters. However, electricity consumption is a demonstrably inaccurate basis to estimate groundwater pumped.²⁶ Many wells do not report at all.

The Plan does not require enforcement of the MCWRA flowmeter ordinance, but instead would permit continued reliance on the same methods used in the past. (GSP, section 7.3, p. 7-16.) The Plan does not even require annual reporting by all agricultural users, instead providing for estimates of such pumping using crop data and crop duty

²⁵ Langridge, Ruth. (University of California, Santa Cruz), California's Fourth Climate Change Assessment Central Coast Region Report, 2018, pp. 17, 6, 7, 21, available at <https://www.energy.ca.gov/sites/default/files/2019-07/Reg%20Report-%20SUM-CCCA4-2018-006%20CentralCoast.pdf>.

²⁶ Irrigation Training and Research Center, California Polytechnic State University, ITRC Paper No. P 17-001, May 2017 available at <http://www.itre.org/papers/wellrecords.htm>.

estimates. The Plan should be revised to mandate use of flowmeters for all wells with discharge pipes of 3 inches or greater, with annual verification in accordance with Ordinance No. 3717. A monitoring plan that fails to require accurate measurement of groundwater extractions fails to meet SGMA's mandate to rely on best management practices and best available science to obtain the best available information.

Thank you for the opportunity to comment.

Sincerely,

A handwritten signature in black ink, appearing to read "Michael DeLapa". The signature is stylized and cursive.

Michael DeLapa
Executive Director

EXHIBIT 2

June 9, 2021

Via e-mail

Members of the Board of Directors
Salinas Valley Basin Groundwater Sustainability Agency
P.O. Box 1350
Carmel Valley, CA 93924
Via email board@svbgsa.org

Re: Failure to implement the Salinas Valley Groundwater Basin 180/400-Foot
Aquifer Subbasin Groundwater Sustainability Plan

Dear Members of the Board:

We write to object to the failure of the Salinas Valley Groundwater Basin Groundwater Sustainability Agency (SVGBGSA) to take effective steps to implement a critical part of the Salinas Valley Groundwater Basin 180/400-Foot Aquifer Subbasin Groundwater Sustainability Plan (GSP).

The GSA has failed to implement “Priority Management Action # 5” in the GSP, which calls for a moratorium on additional well drilling in the Deep Aquifers in the 180/400-Foot Aquifer Subbasin pending completion of a study to determine their sustainable yield. Since its January 2020 adoption of the GSP, the SVGBGSA has not taken action to effect that moratorium and neither Monterey County nor the SVGBGSA have begun the study of the Deep Aquifers.

The County and the SVGBGSA have allowed new wells and increased pumping in the Deep Aquifers to impair water quality and to mine a groundwater resource. In May 2020, Monterey County permitted its moratorium on Deep Aquifer wells to expire, but the SVGBGSA failed to impose pumping restrictions, despite its authority to do so under Water Code Section 10726.4(a)(2). Since then, Monterey County has resumed issuing permits for Deep Aquifer wells. In 2020, 5 additional high capacity Deep Aquifer wells were constructed, and as of May 3, 2021, there were at least two additional permit applications pending. Pumping from the Deep Aquifers is now more than two and a half times the level that was projected to induce seawater intrusion in the upper aquifers and potentially intrude contaminated groundwater into the Deep Aquifers themselves.

The SVGBGSA should take immediate action to implement the GSP by prohibiting pumping from any new wells constructed in the Deep Aquifers. If the SVGBGSA fails to implement the GSP, the Department of Water Resources should compel it to do so under its authority to ensure that an adopted GSP “is being

implemented in a manner that will likely achieve the sustainability goal for the basin.” (23 CCR § 355.6(a).) In determining whether GSP implementation is consistent with SGMA, DWR is charged to consider whether “the Agency is implementing projects and management actions consistent with the Plan.” (23 CCR § 355.6(c)(2).) Here, it is clear that the continued permitting and construction of new wells in the Deep Aquifers is inconsistent with the GSP, which calls for a continued moratorium on such wells. Because the SVGBGSA has determined that a moratorium is needed to protect the Deep Aquifers pending completion of a study to determine sustainable yield, the failure to complete the study or to halt new wells demonstrates a failure to protect and manage the aquifers using the “best available science.” (23 CCR § 355.4(b)(1).)

A. Background

There are a number of subbasins and “management areas” in the Salinas Valley Groundwater Basin. Although the full areal extent of the Deep Aquifers is unknown, the Deep Aquifers are located in the 180/400 Foot Aquifer Subbasin and the Monterey Subbasin, which are both coastal subbasins in the Pressure Subarea. There are several aquifers in these subbasins, denoted by their depth. Relevant historically productive aquifers in the coastal area include the 180-Foot Aquifer, the 400-Foot Aquifer, and the Deep Aquifers. (Brown and Caldwell 2015, MCWRA 2017.) The coastal areas of the 180-Foot Aquifer and the 400-Foot Aquifer suffer from seawater intrusion due to overdraft, which lowers the groundwater level below sea level. Since these aquifers are open to the sea, the seawater intrudes when the freshwater level has been lowered and no longer provides a barrier. (Geoscience 2013.)

The Deep Aquifers are poorly understood, but they are believed to be at least two separate aquifers. (WRIME 2003, p. 2-31; MCWD 2016, p. 37.) “The hydrostratigraphy, vertical and horizontal extents, and potential recharge areas for the Deep Aquifers are poorly known.” (SVGBGSA 2020, p. 4-29; see also WRIME 2003, pp. 2-31 to 2-32.) However, the Deep Aquifers are believed to contain ancient water and there is currently no known source of recharge other than leakage of groundwater from aquifers above the Deep Aquifers, i.e., the 180-Foot and 400-Foot Aquifers. (WRIME 2003, p. 2-32; MCWRA 2020, pp. 35, 37; MCWD 2016, p. 37; MCWRA 2017 p. 53.) The “continued pumping of this old water represents mining of a groundwater resource.” (MCWRA 2020, p. 37.)

The first production well in the Deep Aquifers was installed in 1974. (MCWRA 2017, p. 47.) From 1974 through the 1990s, new agricultural production wells went deeper and deeper to avoid seawater intrusion in the upper aquifers. (MCWRA 2017, p. 48.)

The use of the Deep Aquifers for groundwater production has been driven by the need to drill deeper in order to avoid seawater intrusion, with wells being installed to subsequently deeper elevations with fresh-water-bearing materials.

(MCWRA 2017, p. 47.) Five agricultural production wells were drilled between 1974 and 1995. (MCWRA 2021, Figure 2.) In 1998, the Castroville Seawater Intrusion Project (CSIP) began to deliver recycled water to replace coastal pumping. (MCWRA 2017, p. 37.) Thus, for a period after 1998, agricultural pumping from the Deep Aquifers largely ceased and groundwater levels recovered. (MCWD 2016, p. 38; MCWRA 2017, pp. 27, 49-50.) No new agricultural wells were drilled in the Deep Aquifers from 1996 to 2005. (MCWRA 2021, Figure 2.) At that point, the only significant user of the Deep Aquifers was the City of Marina, whose wells in the 180- and 400-foot aquifers had become contaminated by seawater. (MCWD 2016, p. 45.)

A 2003 study for MCWD concluded that increasing pumping of the Deep Aquifers from the 2002 baseline level of 2,400 AFY to 4,000 AFY would (1) induce further seawater intrusion into the upper aquifers (the 180-Foot and 400-Foot Aquifers), which were vertically connected, and (2) risk contamination of the Deep Aquifers themselves. (WRIME 2003, pp. 4-7, 4-11 to 4-12.)

Unfortunately, construction of new agricultural production wells resumed in 2006 and accelerated in 2017-2020. (MCWRA 2021, Figure 2.) Today there are 57 Deep Aquifer wells in the 180-Foot and 400-Foot Aquifer Subbasin, including at least 32 agricultural wells. (*Id.*) Reported groundwater pumping has increased four-fold since 2002, from 2,416 AFY to 10,347 in 2019. (*Id.*)

So far, the Deep Aquifers are not believed to have been *directly* seawater intruded as a result of aquifer openings to the ocean. However, vertical flow from upper aquifers occurs, especially from wells that have been perforated multiple aquifers or are not properly sealed. This leakage permits migration of impaired groundwater between the upper aquifers and also to the Deep Aquifers. MCWRA reported in 2017 that this migration is induced and accelerated by over-pumping the Deep Aquifers.

WRIME (2003) and Feeney and Rosenberg (2003) suggest that the predominant source of recharge to the Deep Aquifers is leakage from the overlying Pressure 180-Foot and Pressure 400-Foot Aquifers. Both of these aquifers have extensive areas of documented seawater intrusion overlying the Deep Aquifers. Continued pumping, and especially increased pumping, in the Deep Aquifers has the potential to induce additional leakage from the impaired overlying aquifers.

(MCWRA 2017, p. 54; *see also* MCWRA 2017, pp. 52, 53; MCWRA 2017, pp. 34-37 [discussing advancing seawater intrusion in the 400-Foot Aquifer due to vertical migration from the 180-Foot Aquifer].) MCWRA reported in 2017 that, despite efforts to limit inter-aquifer migration, “water quality data now show regional impacts from groundwater pumping are overriding the preventative measures implemented on the basis of site-specific hydrogeology, allowing for continued inter-aquifer migration of groundwater and advancement of seawater intrusion.” (MCWRA 2017, p. 37.)

MCWRA again warned in 2020 that the vertical migration of upper aquifer water that is induced by additional pumping of the Deep Aquifers may carry contaminated groundwater to lower aquifers:

As discussed in Section 5.2.9 of the 2017 Recommendations report, groundwater obtained through pumping of wells in the Deep Aquifers is thought to be recharged primarily by leakage from the overlying 180-Foot and 400-Foot Aquifers (Feeney and Rosenberg, 2003). Increasing groundwater pumping in the Deep Aquifers will likely result in increased leakage from overlying aquifers with impaired groundwater.”

(MCWRA 2020, p. 35.) MCWRA reported in 2020 that Deep Aquifer groundwater levels have been falling since 2014, are well below sea-level, and that induced vertical migration of contaminated water to the Deep Aquifers themselves is in fact occurring:

As is the case with the 180-Foot and 400-Foot Aquifers, groundwater levels in the Deep Aquifers are predominantly below sea level. Beginning around 2014, groundwater levels in the Deep Aquifers began declining and are presently at a deeper elevation than groundwater levels in the overlying 400-Foot Aquifer based on comparisons of multiple well sets at selected locations, meaning that there is a downward hydraulic gradient between the impaired 400-Foot Aquifer and the Deep Aquifers (Figure 16 and Figure 17). This decrease in groundwater levels coincides with a noticeable increase in groundwater extractions from the Deep Aquifers (Figure 16 and Figure 17). The potential for inducing additional leakage from overlying impaired aquifers is a legitimate concern documented by previous studies and is something that would be facilitated by the downward hydraulic gradient that has been observed between the 400-Foot Aquifer and Deep Aquifers.

Seawater intrusion has not been observed in the Deep Aquifers. However, the Agency has documented the case of one well, screened in the Deep Aquifers, that is enabling vertical migration of impaired groundwater into the Deep Aquifers. The Agency is working with the well owner on destruction of this well

(MCWRA 2020, p. 31.)

B. Increasing Deep Aquifer well construction and pumping led to two-year moratorium on new Deep Aquifer wells from May 2018 to May 2020 to give the County time to conduct a study to determine sustainable yield.

By 2016, there were more than 40 wells in the Deep Aquifers, including high production agricultural wells, and pumping had reached 8,900 AFY – more than twice the 4,000 AFY level that the 2003 WRIME study concluded would induce seawater intrusion to the upper aquifers and put the Deep Aquifer itself at risk. (MCWRA 2017, pp. 47, 52.) In a 2017 study, MCWRA recommended a moratorium on new wells in the upper aquifers in the so-called “Area of Impact,” the coastal area already suffering from

seawater intrusion. MCWRA also recommended a moratorium on new wells in the Deep Aquifers pending a sustainability study, noting that the moratorium on upper aquifer wells would drive people to drill more wells in the Deep Aquifers.

The recommendation to prohibit construction of new wells in the Area of Impact and, following the enhancement and expansion of CSIP, to cease groundwater pumping within the Pressure 400-Foot Aquifer in the Area of Impact, has the potential to result in increased pumping in the Deep Aquifers. History has shown that once well construction and/or pumping is prohibited in a given area, people are very likely to drill wells to the next deepest water-bearing zone which, in this case, would be the Deep Aquifers. The construction and pumping of more wells in the Deep Aquifers will induce further leakage from the impaired overlying aquifers (Pressure 180-Foot and Pressure 400-Foot Aquifers), potentially degrading the water quality of the Deep Aquifers.

(*Id.*, p. 54.) MCWRA recommended a ban on Deep Aquifer wells continue until completion of a study because the Deep Aquifers are poorly understood.

Scant data exists on the hydraulic properties of the Deep Aquifers. The areal extent, quantified rates of recharge, and estimates of water available for extraction are all topics that are poorly understood when it comes to the Deep Aquifers. Investigation of these and related topics should be completed before pursuit of groundwater from the Deep Aquifers continues.

(*Id.*, p. 54.) MCWRA specifically recommended that there be no exception for “replacement wells,” i.e., wells that replace an existing well that fails due to water quality problems of structural failure. (*Id.*, p. 60.)

At the direction of the MCWRA Board of Directors and the County Board of Supervisors, a working group was convened for 90 days to develop an interim urgency ordinance. (Monterey County 2018a [Ordinance 5302, recital 6].) Based on some of this group’s recommendations, in May 2018, the County enacted Urgency Ordinance No. 5302 imposing a 45-day moratorium on new wells in the 180, 400, and Deep Aquifers in the "Area of Impact," generally northwest of Davis Road. The ordinance also prohibited any new well in the Deep Aquifers outside the Area of Impact. As planned, on June 26, 2018, the Board adopted Ordinance No. 5303 which extended Ordinance No. 5302 until May 21, 2020, thus providing for a two year moratorium. (Monterey County 2018a, b [Ordinances 5302 and 5303].)

The announced intent of the moratorium in Ordinances 5302 and 5303 was to give the County and the SVGBGSA time to study the Deep Aquifer and develop further regulations within two years.

This ordinance's temporary prohibition on drilling of new wells in the identified areas is necessary due to the current and immediate threat to the public health,

safety, and welfare that would result from new wells in the Area of Impact and Deep Aquifers, pending the development of a plan for the sustainable management of the 180/400 Foot Aquifer Subbasin and the study and implementation of other steps to address seawater intrusion in the Pressure 180-Foot and Pressure 400-Foot Aquifers. *It is the intent and purpose of this interim ordinance to enact a ban that is only temporary in order to provide time for the County to study and develop appropriate regulations.* The areas where this ordinance applies will be the subject of study and development of further regulations, within two years of adoption of this ordinance, to address the sustainability of the groundwater supply. Pursuant to the Sustainable Groundwater Management Act (SGMA), the Salinas Valley Basin Groundwater Sustainability Agency and the Marina Coast Water District Groundwater Sustainability Agency must adopt Groundwater Sustainability Plans (GSPs) for sustainable management of the critically overdrafted 180/400 Foot Aquifer by January 31, 2020. Additionally, pursuant to Policy PS 3.1 of the 2010 Monterey County General Plan, the County is conducting a five-year comprehensive study of the Zone 2C assessment area of the Salinas Valley Groundwater Basin, including development of an integrated comprehensive hydrogeologic model to assess the ability of the Salinas Valley Groundwater Basin to provide a sustainable supply of water for land use activities projected to year 2030 under the General Plan and to 2040 for the GSP planning horizon. Additionally, on April 24, 2018, the Board of Supervisors endorsed a number of other measures recommended by the Ninety-Day Working Group for addressing seawater intrusion, such as destruction of certain identified wells. *A temporary halt on drilling of new wells in the denoted areas under this ordinance will enable the County to study and develop policies and regulations in connection with the Groundwater Sustainability Plans and results of the General Plan study and to implement other recommended actions.* Absent this ordinance, applicants could continue to obtain well permits that could exacerbate seawater intrusion without the guidance of regulations to be developed for the sustainable management of the Salinas Valley Groundwater Basin.”

(Monterey County 2018a, emphasis added [Ordinance 5302, recital 8].)

C. Despite MCWRA’s recommendations to the contrary, the County continues to permit so-called “replacement wells” in the Deep Aquifers.

Contrary to MCWRA’s 2017 recommendation, the 2018-2020 moratorium in Ordinances 5302 and 5303 exempted “replacement wells,” i.e., wells drilled to replace the water supply previously obtained from wells that have failed due to seawater intrusion or structural collapse. (Monterey County 2018a [Ordinance 5302, Section 5.A.4 and 5]; see MCWRA 2017, p. 45.) Thus, the County continued to permit Deep Aquifer wells during the moratorium as long as they were considered replacement wells. (MCWRA 2020, p. 29.) Indeed, as the moratorium was about to lapse in May 2020, MCWRA found that exemption for replacement wells had actually increased well construction in the Deep Aquifers above the previous rate of well construction.

The exemption for replacement wells has brought about an increase in the number of wells installed in the Deep Aquifers on an annual basis. Prior to approval of Ordinance No. 5302, typically one or two wells were installed in the Deep Aquifers in a given year. Prior to 2006, many years had no new Deep Aquifers wells being drilled. In comparison, four new wells were installed in the Deep Aquifers in 2018: two replacement wells and two wells that were permitted prior to approval of Ordinance No. 5302. In 2019, four replacement wells were drilled in the Deep Aquifers (Figure 14) and so far in 2020, one replacement well has been drilled in the Deep Aquifers.

(MCWRA 2020, p. 29.)

In its May 2020 report to the Monterey County Board of Supervisors, issued just as the two-year moratorium was set to expire, MCWRA recommended continuing the Ordinance's restrictions, *and also prohibiting replacement wells*. (MCWRA 2020, p. 6.) The report noted the existence of the "previously unseen phenomenon" of seawater intrusion via vertical migration from the 180-Foot Aquifer to the 400-Foot Aquifer. (*Id.*, p. 1; see *id.* pp. 15.) The report explains that the "downward groundwater gradient between the 180-Foot Aquifer and 400-Foot Aquifer . . . acts as a driving force for vertical migration or inter-aquifer seawater intrusion." (*Id.*, p. 25.) This finding is consistent with earlier warnings that increased pumping of the Deep Aquifers *also* creates a downward gradient that may induce seawater intrusion into the upper aquifers. (See, e.g., MCWRA 2017, p. 54; WRIME 2003, pp. 4-7, 4-11 to 4-12.) MCWRA's 2020 report also documented at least one case of vertical migration of contaminated groundwater to the Deep Aquifer. (*Id.*, p. 31.)

Indeed, MCWRA's 2020 report found that "[i]ncreasing groundwater pumping in the Deep Aquifers will likely result in increased leakage from overlying aquifers with impaired groundwater." (*Id.*, p. 35.) And the report noted that replacement wells are in fact resulting in substantially increased Deep Aquifer pumping:

As discussed in Section 4.3, eleven replacement wells have been permitted for installation in the Deep Aquifers; seven of these have been constructed as of April 2020. All eleven replacement wells are proposed for agricultural irrigation use. . . . If all eleven replacement wells were to pump an equivalent annual volume of groundwater from the Deep Aquifers as the wells they are replacing in the 400-Foot Aquifer, as most applicants have indicated is their intention, an additional 2,400 acre-feet per year of groundwater would be extracted from the Deep Aquifers (Figure 19). This added pumping would be an increase of 23% over the 2019 annual extractions from the Deep Aquifers. Additionally, there are two wells in the Deep Aquifers that were permitted prior to passage of Ordinance No. 5302 that are also not yet operational, but which will also contribute to increasing future groundwater extractions from the Deep Aquifers once they are brought into production.

(MCWRA 2020, p. 34.)

MCWRA's 2020 report recommended that the prohibitions continue until such time as the Deep Aquifers can be studied to determine its sustainable yield. (MCWRA 2020 pp. 26-27.) MCWRA explained that the conditions described in the Findings and Declarations of Ordinance Nos. 5302 and 5303, which supported the moratorium adoption, continue to exist and worsen, and thus continue to pose an immediate threat to the public peace, health and safety. MCWRA's findings in support of its recommendation to ban new Deep Aquifer wells, including new replacement wells include the following:

- “Wells are being installed in the Deep Aquifers at an increasing rate through use of the exemption for replacement wells allowed by Ordinances No. 5302 and No. 5303.
- “Groundwater extractions from the Deep Aquifers have increased 21% since the 2017 Recommendations report was released.
- “Extractions from the Deep Aquifers are expected to increase an additional 23% over 2019 extractions once all replacement wells that have been permitted thus far become operational.
- “Isotope analysis of water from the Deep Aquifers indicates that it is not derived from recent recharge (Hanson et al., 2002). Though stored groundwater may not be the primary source of current extractions in the Deep Aquifers, continued pumping of this old water represents mining of a groundwater resource.
- “There continues to be a scant amount of data on many facets of the Deep Aquifers geologic, hydrologic, and geographic properties. With the addition of new agencies that will be managing aspects of the Deep Aquifers, a comprehensive understanding of the Deep Aquifers is essential for near-term decision making and long-term water resources planning.”

(MCWRA 2020, p. 37.) Despite MCWRA's recommendation to extend the moratorium and to prohibit replacement wells, the Board of Supervisors allowed the moratorium to lapse at their May 19, 2020 meeting. (Monterey County, 2020b [Board Order].)

With the May 2020 lapse of the moratorium, the County was able to process applications to permit Deep Aquifer wells and began doing so. The County briefly suspended new well permitting from August 2020 to December 2020 when the California Supreme Court held in *Protecting Our Water and Environmental Resources v. County of Stanislaus* (2020) 10 Cal.5th 479, 497 that well permits are not automatically exempt from CEQA review as “ministerial” actions. (Monterey County, 2020a [Ordinance 5339].) However, that 90-day moratorium continued to allow issuance of replacement well permits. (*Id.*) And that 90-day moratorium was allowed to lapse in December 2020. The County continues to issue Deep Aquifer replacement well permits and to do so without any CEQA review, relying on CEQA's exemption for “emergency” projects.

As of May 2021, 57 total wells have been installed in the Deep Aquifers, of which 25 were installed in the past 10 years, 14 in the past three years, and 5 in 2020. (MCWRA 2021, pp. 1, 4 [Figure 1].) As noted, MCWRA has concluded that the increased pumping of Deep Aquifer wells has been lowering Deep Aquifer groundwater levels since 2014, increasing the vertical gradient between the Deep Aquifer and the overlying 400-Foot Aquifer, and inducing migration of contaminated groundwater into the Deep Aquifers. (MCWRA 2020, pp. 31, 35.)

D. Neither the County nor SVGBGSA has commenced or funded the Deep Aquifer study recommended over three years ago.

As of May 2020, two years after the moratorium that was enacted to enable the County to study the Deep Aquifer, MCWRA reported that no funding had yet been identified for a Deep Aquifer study. (MCWRA 2020, p. 35.) As of March 21, 2021, neither the County of Monterey nor the SVGBGSA had actually funded, much less commenced, the Deep Aquifer study recommended by MCWRA in October 2017, over three years earlier. (SVGBGSA 2021, p. 7 [“Time to start the conversation on how to get this done!”].)

E. The 180/400-Foot Aquifer Subbasin Groundwater Sustainability Plan provisions to protect the Deep Aquifers have not been implemented.

The GSP does not adequately assess or address the Deep Aquifers because, it acknowledges, there is insufficient data. The GSP acknowledges that the “hydrostratigraphy, vertical and horizontal extents, and potential recharge areas for the Deep Aquifers are poorly known.” (SVGBGSA 2020, p. 4-29.) Accordingly, it defers analysis to the future:

- “An aquifer properties assessment and deep aquifers investigation will be conducted to address key data gaps.” (*Id.*, p. ES-16; see p. 10-5.)
- “MCWRA does not produce groundwater elevation maps of the Deep Aquifers. Insufficient data currently exist to map flow directions and groundwater elevations in the Deep Aquifers. This is a data gap that will be addressed in GSP implementation.” (*Id.*, p. 5-14.)

Absent this data, the minimum thresholds were not meaningfully devised to protect the Deep Aquifer. For example, Table 8-2 sets the minimum threshold for chronic lowering of groundwater levels at -10 feet for the *single* Deep Aquifer well for which the GSP reports data. (*Id.*, p. 8-15.) But this minimum threshold has already likely been exceeded because MCWRA found that Deep Aquifer groundwater levels have been declining since 2014. (MCWRA 2020, p. 31.) Or, for example, the minimum threshold for seawater intrusion was set based on MCWRA’s mapping of the 500 mg/l chloride concentration seawater intrusion front. (SVGBGSA 2020, p. 8-32.) But MCWRA has not mapped or measured seawater intrusion in the Deep Aquifers. So, the GSP arbitrarily set the minimum threshold for seawater intrusion in the Deep Aquifers at the “line defined by

Highway 1.” (*Id.*, p. 8-6.) Since there is a no reported direct ocean connection to the Deep Aquifer, setting the minimum threshold for saline contamination as if seawater would advance from the ocean is meaningless. The acknowledged path of saline contamination that puts the Deep Aquifer at risk is vertical migration from upper aquifers. (*Id.*, pp. 5-42, 9-20.)

The only management action identified in the GSP to address risks to the Deep Aquifer is “Priority Management Action 5: Support and Strengthen Monterey County Restrictions on Additional Wells in the Deep Aquifers,” which was proposed in January 2020 when the County still had a moratorium on Deep Aquifer wells. Under this management action, SVGBGSA was supposed to ensure that the moratorium was extended until the Deep Aquifer sustainable yield is determined:

SVBGSA will work with Monterey County to extend this ordinance to prevent any new wells from being drilled into the Deep Aquifers until more information is known about the Deep Aquifers’ sustainable yield. MCWRA plans to complete this study of the Deep Aquifers over the next three years, when funding becomes available. SVBGSA will comment on the MCWRA study of the Deep Aquifers to ensure that the study and the resulting permanent regulations will promote groundwater sustainability as defined in this GSP.

(SVGBGSA 2020, p. 9-19.) The plan provides that “SVBGSA will support extension of Ordinance 5302 *immediately*. Deep Aquifers pumping will only be allowed *after* MCWRA completes its study of the Deep Aquifers’ sustainable yield.” (*Id.*, p. 9-20, emphasis added.) The plan notes that SVGBGSA has the authority to halt extractions from the Deep Aquifer:

California Water Code §10726.4 (a)(2) provides GSAs the authorities to control groundwater extractions by regulating, limiting, or suspending extractions from individual groundwater wells or extractions from groundwater wells in the aggregate (CWC, 2014).

(*Id.* at 9-20.)

The purported benefits of this management action were to be improved groundwater levels and groundwater storage and reduction of vertical migration of impaired groundwater from overlying aquifers. (*Id.* pp. 9-19 to 9-20.)

As noted, the County has allowed the moratorium to lapse and continues to permit Deep Aquifer wells. However, the SVGBGSA has not exercised its acknowledged authority to restrict Deep Aquifer pumping. The promised study of sustainable yield has neither commenced nor been funded. Groundwater levels in the Deep Aquifers continue to decline and the vertical migration of impaired groundwater from overlying aquifers is in fact occurring.

The SVGBGSA must now take action to implement the GSP by restricting pumping from Deep Aquifer wells pending completion of the Deep Aquifers study. Although the SVGBGSA cannot deny a well construction permit, it can restrict or ban pumping. (Water Code, §10726.4 (a)(2).) Thus, SVGBGSA should bar pumping from any new wells in the Deep Aquifers, which will have the same practical effect as would a County moratorium on well permits.

If the SVGBGSA is unwilling to take action to enforce its GSP, the DWR should use its authority to ensure that an adopted GSP “is being implemented in a manner that will likely achieve the sustainability goal for the basin.” (23 CCR § 355.6(a).) Although DWR *must* evaluate GSP implementation every five years, DWR “*may* evaluate the implementation of a Plan *at any time* to determine whether the Plan is consistent with the objectives of the Act and in substantial compliance with this Subchapter.” (23 CCR § 355.6(f), emphasis added.)

In determining whether GSP implementation is consistent with SGMA, DWR is charged to consider whether “the Agency is implementing projects and management actions consistent with the Plan.” (23 CCR § 355.6(c)(2).) Here, it is clear that the continued permitting and construction of new wells in the Deep Aquifers is not consistent with the GSP, which calls for a continued moratorium on such wells. Because the SVGBGSA has determined that a moratorium is needed to protect the Deep Aquifers pending completion of a study to determine sustainable yield, the failure to complete the study and to halt new wells constitutes a failure to protect and manage the aquifers using the “best available science.” (23 CCR § 355.4(b)(1).)

Neither the SVGBGSA nor DWR should wait to take action. Continued investments in very expensive Deep Aquifer wells is damaging the aquifer and creating expectations of continued water use that are very likely unsustainable and imprudent.

Yours sincerely,

M. R. WOLFE & ASSOCIATES, P.C.

A handwritten signature in blue ink, appearing to be 'JF', is written over a light blue rectangular background.

John Farrow

JHF:hs

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